

### **Abstract of the Disclosure**

The present invention is directed to methods for modulating endoreduplication in a plant or part thereof. The methods involve modifying expression or activity of an *E2F* or an *E2F/Dp* gene combination. In one embodiment, endoreduplication may be increased by expressing an *E2F* transgene in a plant or part thereof. Endoreduplication may also be increased by expressing an *E2F* and a *Dp* transgene in a plant or part thereof. Plant cells, whole plants, and parts thereof which express the product of an *E2F* or both an *E2F* and a *Dp* gene are also provided.